DOCUMENT RESUME

ED 320 201 EA 021 760

TITLE	The Education Deficit. A Staff Report Summarizing the Hearing on "Competitiveness and the Quality of the American Work Force," Prepared for the Use of the Subcommittee on Education and Health of the Joint Economic Committee. Congress of the United States, 101st Congress, First Session, December 14, 1988.
INSTITUTION	Joint Economic Committee, Washington, D.C.
REPORT NO	Congress-Doc-101-82
PUB DATE	89
NOTE	56p.
AVAILABLE FROM	Superintendent of Documents, Congressional Sales Office, U.S. Government Printing Office, Washington, DC 20402.
PUB TYPE	Legal/Legislative/Regulatory Materials (090)
EDRS PRICE	MF01/PC03 Plus Postage.
DESCRIPTORS	Back to Basics; Educational Benefits; Educational Change; *Educational Improvement; *Educational Needs; Educational Objectives; *Educational Quality; Elementary Secondary Education; *Excellence in Education; *Hearings; Instructional Effectiveness; *Outcomes of Education; Program Effectiveness; Quality of Life; School Effectiveness; Teacher Effectiveness
IDENTIFIERS	*Congress 101st

ABSTRACT

This staff report summarizes testimony on competitiveness and the quality of the American work force. The testimony was received during 9 days of hearings held between September 23 and December 3, 1987, that featured 52 witnesses including federal and state officials, educators, business and labor leaders, and scholars. Contents comprise prepared policy statements, policy recommendations, and a witness list framed by the notions that the United States is falling behind the rest of the industrialized world in promoting literacy, job skills, and educational achievement. Clear and consistent themes emerged from witnesses' testimony: (1) there must be an immediate response to today's changing demographics; (2) school building location, facilities, and services should complement the educational process in the schools; (3) serious consideration should be given to lengthening school hours, the school week, and the school year; (4) achievement in education needs to be redefined to extend beyond basic reading, writing, and mathematics skills to include problem solving and abstract reasoning; (5) both the private and public sectors must reexamine and update both general and vocational education to make the curriculum more relevant to labor market requisites; (6) teacher training must be improved; (7) active federal support will be required for research, development, demonstration, and information programs to strengthen education; (8) examination and analysis of policies on education, training, productivity, and employment must continue and progress; (9) teacher certification, student testing, and school-based management and decision-making must remain essentially state and local matters; and (10) greater opportunities are needed for early childhood education. (JAM)

EA

101ST CONGRESS
1st Session

HOUSE OF REPRESENTATIVES

DOCUMENT
101-82

THE EDUCATION DEFICIT

A STAFF REPORT SUMMARIZING THE HEARINGS ON "COMPETITIVENESS AND THE QUALITY OF THE AMERICAN WORK FORCE"

PREPARED FOR THE USE OF THE

SUBCOMMITTEE ON EDUCATION AND HEALTH

OF THE

JOINT ECONOMIC COMMITTEE
CONGRESS OF THE UNITED STATES

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

DECEMBER 14, 1988

Printed for the use of the Joint Economic Committee

U.S. GOVERNMENT PRINTING OFFICE
99-900 WASHINGTON : 1989

For sale by the Superintendent of Documents, Congressional Sales Office
U.S. Government Printing Office, Washington, DC 20402

BEST COPY AVAILABLE

ED320201

EA 021 760

JOINT ECONOMIC COMMITTEE

[Created pursuant to sec. 5(a) of Public Law 304, 79th Congress]

SENATE	HOUSE OF REPRESENTATIVES
PAUL S. SARBANES, Maryland, *Chairman*	LEE H. HAMILTON, Indiana, *Vice Chairman*
WILLIAM PROXMIRE, Wisconsin	AUGUSTUS F. HAWKINS, California
LLOYD BENTSEN, Texas	DAVID R. OBEY, Wisconsin
EDWARD M. KENNEDY, Massachusetts	JAMES H. SCHEUER, New York
JOHN MELCHER, Montana	FORTNEY H. (PETE) STARK, California
JEFF BINGAMAN, New Mexico	STEPHEN J. SOLARZ, New York
WILLIAM V. ROTH, Jr., Delaware	CHALMERS P. WYLIE, Ohio
STEVE SYMMS, Idaho	OLYMPIA J. SNOWE, Maine
ALFONSE M. D'AMATO, New York	HAMILTON FISH, Jr., New York
PETE WILSON, California	J. ALEX McMILLAN, North Carolina

JUDITH DAVISON, *Executive Director*
RICHARD F KAUFMAN, *General Counsel*
STEPHEN QUICK, *Chief Economist*
ROBERT J. TOSTERUD, *Minority Assistant Director*

SUBCOMMITTEE ON EDUCATION AND HEALTH

HOUSE OF REPRESENTATIVES	SENATE
JAMES H. SCHEUER, New York, *Chairman*	JEFF BINGAMAN, New Mexico
AUGUSTUS F. HAWKINS, California	LLOYD BENTSEN, Texas
FORTNEY H. (PETE) STARK, California	PETE WILSON, California
OLYMPIA J. SNOWE, Maine	ALFONSE M. D'AMATO, New York

101ST CONGRESS
1ST SESSION

H. RES. 156

Authorizing the printing of the joint committee print entitled "The Education Deficit" as a House document.

IN THE HOUSE OF REPRESENTATIVES

MAY 16, 1989

Mr. HAMILTON (for himself and Mr. SCHEUER) submitted the following resolution; which was referred to the Committee on House Administration

---

RESOLUTION

Authorizing the printing of the joint committee print entitled "The Education Deficit" as a House document.

Resolved, That the joint committee print entitled "The Education Deficit", dated December 14, 1988, shall be printed as a House document. In addition to the usual number, 3,000 copies of the document shall be printed for the use of the Joint Economic Committee.

O

LETTER OF TRANSMITTAL

OCTOBER 12, 1988.

Hon. PAUL S. SARBANES,
Chairman, Joint Economic Committee,
Congress of the United States, Washington, D.C.

DEAR PAUL: I am pleased to transmit herewith a staff report entitled "The Education Deficit."

The Report summarizes the testimony received during nine days of hearings held between September 23 and December 3, 1987, on "Competitiveness and the Quality of the American Work Force." Testimony was received from 52 witnesses including Federal and State officials, educators, business and labor leaders and scholars.

The hearings were initiated in response to reports that:

1. The United States is falling behind the rest of the industrialized world in promoting literacy, job skills and educational achievement;
2. American students are not being adequately prepared for the work force. An unacceptable number of students drop out of school before graduating and too many of those who do graduate from high school lack basic skills; and
3. Without a new approach to education and training which produces a much more highly skilled and literate work force, the United States is in danger of becoming a second- or third-rate economic power.

The hearings were organized and the Report written by Deborah Matz of the Committee staff. Ellen Hoffman, also of the Committee staff, edited the manuscript, and Nancy Davis provided valuable administrative assistance in both organizing the hearings and preparing the Report.

The Subcommittee is also grateful to Marc Tucker, former Executive Director of the Carnegie Forum on Education and the Economy, and currently Executive Director of the National Center on Education and the Economy, for his generous assistance with respect to both the organization of the hearings and the drafting of the Report.

With every warm best wish,

Yours,

JAMES H. SCHEUER,
Chairman, Subcommittee on Education and Health.

CONTENTS

	Page
Letter of Transmittal	v
Introduction by Congressman James H. Scheuer	1
Overview	5
Tipping the Trade Balance	5
From Creditor to Debtor	9
International Competitiveness: Toward a Definition	12
Present Challenges	14
Future Challenges	15
Components of the American Educational System	18
Students	18
Structure of the School System	20
Teachers	21
Curriculum: Old Basics Versus the New	22
Conclusion	24
Preparing for a Competitive Future: An Agenda	26
Students, Families, and Communities	26
Early Childhood Education	26
Parent and Community Involvement	27
The Structure of the School System	28
Restructuring Decisionmaking	28
Extending the School Day and Year	29
Teachers	31
Recruiting and Training Teachers	31
Minority Teachers	32
Holding Teachers Accountable	32
Curriculum	34
The New Basics	34
Personal and Interpersonal Skills	35
International Literacy	35
Vocational Education	35
Accountability	37
Holding Educational Systems Accountable	37
New Measures of Achievement	37
Training the American Work Force	39
The Transition From School to Work	39
Work Place Education and Training	40
New Models for Education and Training	41
Unique Federal Roles	43
Conclusion and Summary of Hearing Recommendations	44
Witness List	47

INTRODUCTION BY CONGRESSMAN JAMES H. SCHEUER, CHAIRMAN, SUBCOMMITTEE ON EDUCATION AND HEALTH

Between September 23 and December 3, 1987, the Joint Economic Committee's Subcommittee on Education and Health, which I chair, held nine days of hearings on "Competitiveness and the Quality of the American Work Force." In the course of these hearings the Subcommittee received testimony from a wide range of witnesses, including Federal and state government officials, educators, scholars, and representatives of business and labor.

The hearings were initiated in an effort to determine why the United States is demonstrably falling behind the rest of the industrialized world in promoting literacy, job skills and educational achievement. The hearings were also prompted by profound concern over the high school dropout phenomenon, which in itself poses a heavy burden on the economy. While the national dropout rate is 25 percent, it rises to 40 percent for blacks and over 50 percent for Hispanics.

The Subcommittee was seeking testimony as to how the situation might be reversed, since the current trends in educational attainment threaten, and over time could undermine, the economic strength and vitality that have long been synonymous with America. Inadequate education and skills affect an individual's own job prospects, future, and family. They also pose an economic challenge of major proportions. Governor Edward D. DiPrete of Rhode Island testified to the Subcommittee that functional illiteracy costs our Nation an estimated $25 billion a year in lost productivity, accidents, damage to equipment, and government support programs.

No nation can long remain competitive in the world economy without an adequately educated and trained work force, and witness after witness emphasized the urgency of moving to address the crisis in education. Stephen Cohen, director of the Berkeley Roundtable on the International Economy, testified on the opening day of the hearings, ". . . How can you stay rich and powerful in a world where capital moves instantaneously and technology diffuses at incredible speed if you stay dumb?" From a different perspective, Admiral James Watkins (ret.), former chief of Naval Personnel, stressed to the Subcommittee the direct bearing which education has on national security, and the problems posed by recruits who cannot adequately read, write, and think.

The challenge of improving education, training, and retraining is complex. Nonetheless certain themes emerged with remarkable regularity from the Subcommittee hearings.

First, there are three basic and distinct educational infirmities that must be confronted: illiteracy; functional illiteracy; and the inability to think; that is, to process information and to carry out analytical and problem-solving responsibilities. Approximately 13 percent of 17-year-old Americans cannot read, write, or count; and it is

estimated that an additional 17 to 21 million adults cannot read. Many millions more are functionally illiterate, with skills so limited that it is virtually impossible for them to read a map or follow written job instructions. And unfortunately many students who appear well-grounded in reading, writing and math are unable to think through a problem or process information, and therefore cannot be relied upon to react with good judgment to new or unexpected situations. **Our educational system must teach our students not only reading, writing, and arithmetic; it must also teach them how to think and how to learn—"higher order skills."**

Second, all of our children must have access to superior education. But some children come to school under conditions, like poverty or homelessness, that have been shown to make failure more likely; they constitute the so-called "at-risk" school population. For many of these students, the chances of success in school are already slim by the time they enter school; in essence, they become dropouts in the first grade. We know from the experience of more than two decades that well-designed and supervised preschool programs significantly increase the prospects for success. We need to make these programs available to every child living in America. Middle-income children have been benefiting from programs similar to Head Start—which their parents call nursery school—for decades. Those who need such programs the most, however, are least likely to receive them. It is a national disgrace that early childhood education, proven so successful in enhancing school achievement, is not yet universally available to all children. **Access to early childhood education is a crucial prerequisite for ensuring equal educational opportunity in America. Head Start has proven to be vital to the educational success of students by preparing them for learning by the time they enter first grade. Early childhood education must be made available to all American children.**

Third, to best serve students from disadvantaged backgrounds, schools can no longer afford to operate on a "business-as-usual" basis. Schools should be a community resource readily accessible days, evenings, weekends, on holidays, and during the summer months. While Japanese students are in school for 240 days each year, Americans require 180 days for our children and because of absenteeism, actual attendance averages only about 160 days. Americans should experiment with a longer school year, perhaps closer in length to Japan's. In addition to simply providing more time for learning, this could minimize the damaging effect that summer vacations have on "at-risk" students who frequently suffer a year's loss of learning during the summer months.

Keeping the schools open for more hours each day, more days each month and more months each year will maximize the opportunity for schools to reach all youth and better nurture and develop their capacity. Providing after-school activities such as remedial work and supervised studying and research could also help students who are "at-risk" to enhance and reinforce their classroom experience. Shorter summer vacations and more after-school programs would be more consistent with the realities of family life today than the obsolete school schedule which was devised decades ago to accommodate a society that was basically agrarian. **Serious consideration should be given to extending the school year, and to**

keeping schools open more hours each day and more days each week.

Fourth, the capacity of the schools should be more effectively used to meet not just the traditional needs of traditional students, but also the special needs of "at-risk" students who are burdened with family, health, and economic problems that often interfere with school responsibilities and are associated with poor achievement and high dropout rates. Likewise, schools should provide for the educational needs of adults and the needs of families for other community and social services, thus maximizing their responsiveness to their community by offering literacy and other education programs for adults; and by establishing social service centers which offer counseling on drug and alcohol problems, employment, maternal and child health, and the like.

Fifth, improving the quality of education in the United States requires focusing on the central role which teachers play. Significant progress will be impossible to achieve without a fully professional teaching force: self-respecting, well-trained, deeply concerned and motivated, and well-paid. Developing and maintaining such a force will only be possible in an environment in which administrators respect and appreciate teachers, encourage their participation in important school decisions, encourage flexibility in the classroom, and recognize success. Policies that minimize flexibility and innovation inhibit widespread progress in learning as well as discourage good teachers and drive them from the profession. Of course, teachers have responsibility and accountability for the achievement of their students, and achievement should be our primary, overriding objective. Effective schools and teachers deserve encouragement, support and recognition. The Federal Government should:

- Mount a major research effort to develop better ways to assess student achievement, particularly achievement in the higher order skills;
- Recognize and promote achievement on the part of schools and teachers;
- Facilitate dissemination of information to support development of more effective schools; and
- Reward schools and professionals that demonstrate success in teaching higher order skills to students.

Sixth, better training and retraining programs for our current work force must go hand-in-hand with better schools. Neglecting the skills of the work force, in the modern economy, condemns an entire generation to obsolescence. Every American worker must be assured adequate on-the-job training and retraining to maintain and upgrade skills. More effective training efforts in both the private and the public sectors are needed. American firms, on average, spend 1 percent of their payroll on employee continuing education and training; many spend nothing at all. In contrast, Japanese firms spend an average of 2.5 percent to 3 percent. The private sector must do its fair share. Either by carrot or stick, the Federal Government must provide adequate incentives to the private sector to encourage training and retraining activities for employees.

In addition, it is important for private corporations to increase their investment in human resources; but so, too, should the Feder-

al Government, just as our industrial competitors do. New approaches to increase America's investment in the productive capacity of our work force must be examined. This includes careful consideration of the variety of approaches being used by other industrial nations.

Finally, although this issue was not addressed in the hearings, it seems obvious that the time has come for this Nation to consider guaranteeing, to all students, an entitlement for up to four years of postsecondary education—be it in a four-year college, two-year junior or community college, or vocational, technical or proprietary institution.

Judicious investments in education and training will repay the Nation many times over in the form of a capable and productive work force; and without such a work force, it will be difficult indeed for the United States to compete and prosper in the global economy. America must adopt a new approach to education and training of the kind outlined above. This will be an enormous and complex undertaking. Without its successful accomplishment, however, the future of the U.S. economy will be dim indeed. Lacking a much more highly skilled and literate work force, the United States could find itself a first-rate military power and a second- or third-rate economic power unable to compete in a global economy.

OVERVIEW

The Education and Health Subcommittee of the Joint Economic Committee was established in the 100th Congress in recognition of two factors: the crucial bearing which sound education and good health have on productivity; and given the sharply competitive international framework in which the U.S. economy now operates, the urgency of improving U.S. productivity and competitiveness if the Nation's standard of living is to remain high. In the period from September 23 to December 3, 1987, the Subcommittee held nine hearings and received testimony from 52 witnesses in its examination of "Competitiveness and the Quality of the American Work Force." The agenda for the hearings, including hearing topics and complete witness lists, can be found at the end of this Report.

The hearings were prompted by the growing body of clear and convincing evidence that the United States is falling behind the world's other major industrialized countries—its principal competitors—in assuring literacy, solid school achievement and effective job training.[1] The hearings concentrated not on those students who typically go to college, but on those who enter the work force when they leave school.

They were held at a time of rising concern over the U.S. trade deficits which since 1982 have set annual records and in the process transformed the United States from the largest creditor nation to the largest debtor nation in the world.

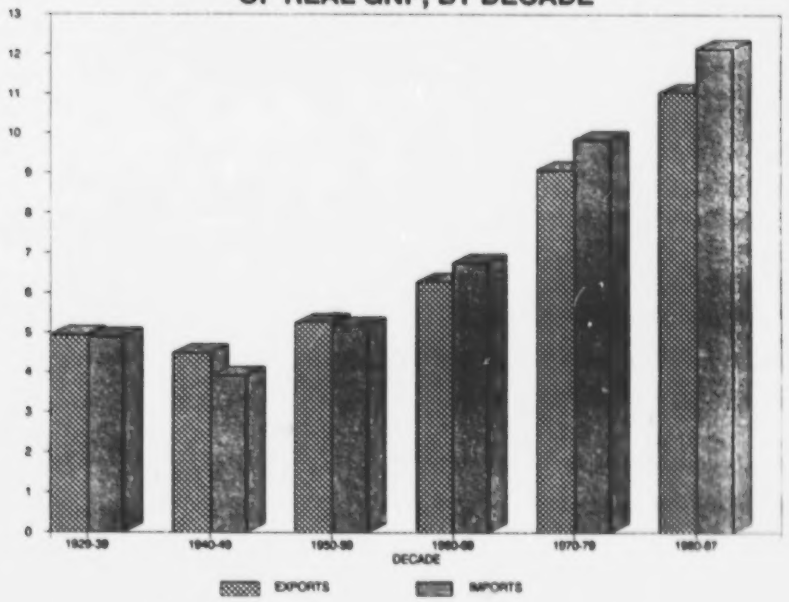
Tipping the Trade Balance

The close integration of the United States into the world economy is a relatively recent event. From the 1920's through the 1960's, less than 7 percent of real gross national product (GNP) in the United States consisted of either exports or imports, as Figure 1 shows; and in many years, trade accounted for less than 5 percent. This has changed significantly during the last two decades as imports and exports have accounted for a growing share of the U.S. economy. By 1987, exports have risen to 14.7 percent of GNP while exports had grown to 11.1 percent. Although the percent of U.S. GNP that enters into trade is still small relative to that of Japan, Western Europe, and the newly industrialized countries of Southeast Asia, world events that affects U.S. exports and imports can have an important effect on the health of the U.S. economy as the

[1] Among the most important studies which address this issue are:
A Nation at Risk, National Commission on Excellence in Education, 1983.
Investing in Our Children, Committee for Economic Development, 1985.
Keys to U.S. Competitiveness, The Conference Board, 1988.
The Underachieving Curriculum: Assessing U.S. School Mathematics From an International Perspective, Stipes Publishing Co., Champaign, Illinois, January 1987.

experience of U.S. manufacturing industries during the 1980's shows.

FIGURE 1
EXPORTS AND IMPORTS AS A PERCENT OF REAL GNP, BY DECADE



Source: U.S. Department of Commerce. National Income and Product Accounts of the United States. Table 1.2.

The U.S. economy today is the world's largest importer and exporter of goods and services. Nevertheless, a combination of unbalanced monetary and fiscal policies during the 1980's and failure to make essential investments, deficits in critical areas including education and job training, have seriously eroded the competitiveness of U.S. industry in recent years.

The combination of tight money and large budget deficits in the 1980's raised real interest rates above historic norms, setting off a disruptive chain of events for the U.S. economy. The high rates attracted foreign savings and pushed up the foreign exchange value of the dollar. This lowered the price of foreign goods relative to domestic goods, while at the same time raising the price of our exports relative to competitive products manufactured abroad. These twin effects of the rising dollar thus helped expand imports while limiting exports. Other industrial countries pursued policies that were the mirror image of U.S. policies, further contributing to the imbalance.

At the same time these short-term imbalances in economic policy have been compounded during the 1980's by the effects of longer

term deficits in U.S. investment in infrastructure, research and development, education, and job training which occurred despite the huge Federal deficit. State and local governments also cut investment expenditures, first during the 1970's in reaction to high inflation and then during the early 1980's in reaction to the recession. Only recently has government investment spending begun to revive, as the results of inadequate government investment have become apparent.

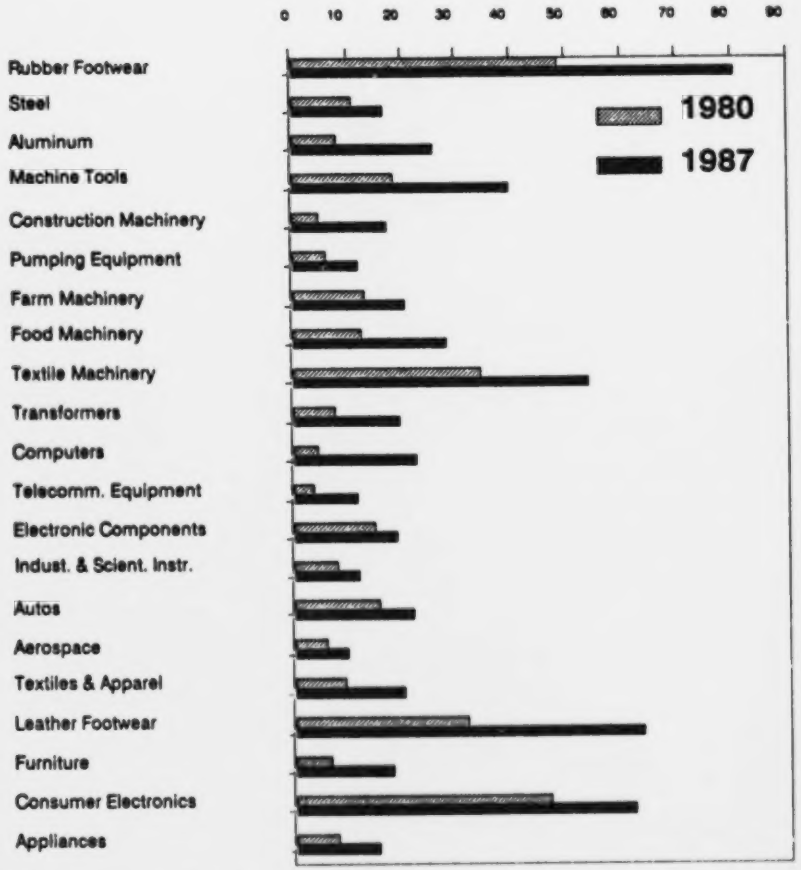
In 1980, the overall trade position of the United States was roughly in balance, with a $26 billion deficit in merchandise trade that was more than offset by the $30 billion in net receipts of international income. After other adjustments, this left a current account surplus of $2 billion.

But as a result of the short-term and long-term policies described above, the United States in each of the last six years has set a record merchandise trade deficit. By the end of 1987, the current account and merchandise trade deficits had both deteriorated to roughly 4 percent of GNP, with the United States in 1987 importing a record $171 billion more than it exported. As indicated in Figure 2, virtually every manufacturing industry had a substantially worse trade balance in 1987 than it had in 1980. It seems apparent that if the current tide is not reversed, the United States could be eliminated as a serious factor in global competition in computer chips and consumer electronics.

FIGURE 2

Import Shares of Major Industries

(Percent of New Supply)



Source: Commerce Department.

From Creditor to Debtor

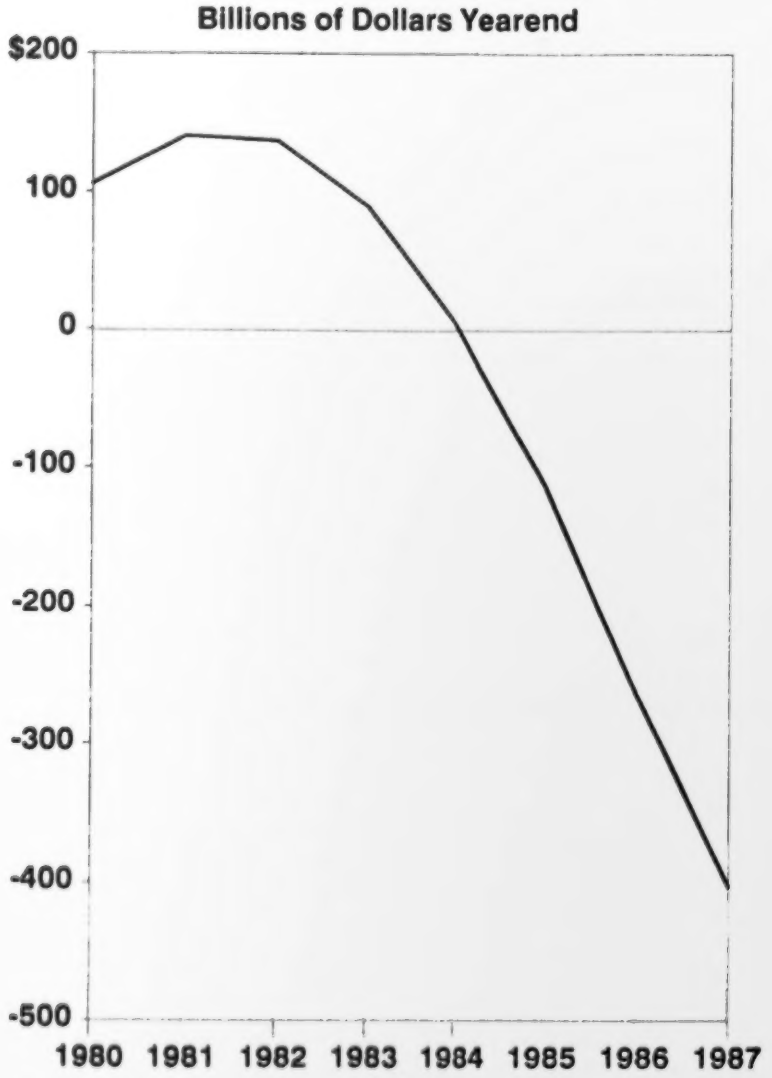
In the same period that our merchandise trade balance was declining, the United States was experiencing another fundamental shift in its status in the world economy—from creditor nation to debtor nation.

Consistent with its earlier position as the world's strongest industrial nation, the United States was a net creditor nation from the end of World War I until 1984. The United States, by 1981, had built up assets abroad officially estimated at $140 billion more than the value of assets held by foreigners in the United States. By the end of 1987, as a result of our growing trade deficit, the U.S. net asset position had deteriorated by roughly $509 billion, leaving a foreign indebtedness of approximately $368 billion, as Figure 3 shows. By June 1988, it had increased to $440 billion and it appears likely to reach $500 billion by the end of 1988.

99-900 - 89 - 2

FIGURE 3

Net Asset Position of the United States



Source: The 1988 Joint Economic Report of the Joint Economic Committee of Congress.

Although the merchandise trade deficit began to improve during the first half of 1988, the United States continues to borrow abroad at an annual rate exceeding $120 billion per year, which will bring our total indebtedness to more than half a trillion dollars by the end of this year.

Furthermore, each year the current account balance is negative, the United States will add to its net external debt by the amount of the deficit. Even optimistic projections of the trade deficit anticipate current account deficits into the 1990's, with a corresponding rise in our external indebtedness to as much as $1 trillion. Correcting the trade deficit and reducing our foreign indebtedness will require that U.S. output grow faster than consumption for some years into the future, a sharp contrast to the 1980's when foreign borrowing allowed domestic consumption to grow faster than production in the United States. Furthermore, our dependence on foreign lenders has already begun to undermine the U.S. role as a world power.

In conclusion, the urgency of the challenge of producing a competitive work force—and the education and training systems capable of sustaining it—must not be underestimated. Either our living standards will rise as productivity rises; or living standards will stagnate as productivity stagnates.

If there was a single overriding consensus that represents a wide range of witnesses who testified at the hearings, it was this: the effectiveness of our schools and our training programs will be a vital factor in determining the outcome.

INTERNATIONAL COMPETITIVENESS: TOWARD A DEFINITION

"An internationally competitive U.S. economy is a prerequisite for the national goals to which we aspire—a rising standard of living for all Americans, our position as a leader of the free world, and our national security." [1]

As the United States approaches the 21st Century we are grappling with the age-old question of whether the glass is half empty or half full. On the one hand, we have the strongest, most productive economy in the world—an economy which since the early 1970's has generated more jobs than any other industrialized economy. On the other hand, the persistence of the trade deficit, the conversion to status as a debtor nation for the first time since 1919 and the failure of worker reproductivity to keep pace with the growth in other industrialized countries raise fundamental questions about our ability to compete in the world economy not only today, but in the fast-moving decades to come.

Labor and management leaders, and the American public as well as economists and policymakers, are increasingly pinpointing the productivity of the American worker as the critical factor in determining whether we as a Nation will ever again enjoy the benefits of a "full glass."

The testimony presented to the Subcommittee confirmed the hypothesis which was the basis of the hearings—the ability of the American worker to compete depends more than anything else on our ability to forge an education and training system that will both modernize the skills of our existing work force and produce a new generation of workers with the capacity and flexibility to adapt to what we know will be the constantly changing demands of our economy in the future.

The importance of the relationship between how we train our workers and our ability to compete was underscored in testimony by Ray Marshall, a professor of economics and public affairs at the L.B.J. School of Public Affairs and a former Secretary of Labor, who suggested this definition of competitiveness: "to be a high-wage country and . . . to have equal opportunity for our people."

"There are only about four ways that you can compete in the international environment," he explained: on the basis of wages; better management to increase productivity, quality and efficiency; technology; and "according to our policies," i.e., by establishing a coherent national competitiveness strategy. Focusing on wages as a competitive strategy, he pointed out, would require a further decline in the real wages of Americans, "and we ought not to do that," Mr. Marshall said.

---

[1] *Global Competition, the New Reality*, The Report of the President's Commission on Industrial Competitiveness. (U.S. Government Printing Office: Washington, D.C.) January 1985, p. 5.

Just how much American workers' wages would have to decline in order to be competitive with wages paid currently in other countries was documented by Ira C. Magaziner, president of Telesis, an international consulting firm, who cited as an example the annual average earnings of $3,000 received by workers in the Samsung Electronics video recorder plant outside of Seoul, Korea. He also cited wage levels as low as 75 cents an hour in Thailand and 60 cents an hour in China.

If the United States, with its tradition of high wages, rejects direct competition with its competitors on wages, competing on any of the other three strategies outlined by Mr. Marshall means "that we have to pay a lot more attention to education and learning systems," he declared.

What exactly does it mean to compete with the educational system of another country?

Many Americans assume that the lower-wage work forces of our foreign competitors are both uneducated and unskilled, but this assumption is wholly unwarranted. Workers in Japan, Korea, Singapore, and a number of other Pacific Rim countries are, by and large, equally well or better trained and educated than their American counterparts.[2]

It was pointed out, for example, that a Japanese youngster who finishes high school has had four more years of actual classroom time and much more exposure to mathematics and science than his or her American counterparts.

Mr. Magaziner recounted that in the case of Singapore, where the average wage is $2.25 an hour, the challenge is to compete with an educational system that includes, among other resources and institutions: seven training institutes that prepare students to do precision and computer numerically controlled machining, tool and diemaking, and precision mechanics; a technical institute which trains technicians in the maintenance of microprocessor and computer-controlled machines; three technology institutes—one of each set up in cooperation with the German, French, and Japanese governments, respectively; several public-private programs to train existing workers in subjects such as robotics and computer design; and a skills development fund that reimburses companies which provide in-house training to their workers.

These, plus additional resources, serve a country whose entire population is 2.5 million people, slightly larger than that of the metropolitan Washington, D.C., area.

Marc Tucker, then-Executive Director of the Carnegie Forum on Education and the Economy, summed up what he sees as the challenge facing both the economy and the educational system:

> Those (sic) really are the two choices. To have a high wage economy, and totally change our conception about what being well educated means as a society—or compete with

[2] If the United States were to try to compete on the basis of wages alone, particularly with the newly industrialized countries of Southeast Asia, the average hourly wage of American workers would have to fall much more than the 7 percent it has already declined during the past decade. Furthermore, the international competitiveness of West Germany and Japan, whose wages after adjusting for the recent decline in the value of the dollar now meet or exceed our own, has not been built on a regime of low wages but on high productivity and high quality.

those folks on equal terms and cut our wages by 4 times, 6 times, 7 times, even 10 times. That is the challenge.

Present Challenges

The witnesses who testified before the Subcommittee agreed and documented in numerous ways that our existing education and training systems are not up to the job of preparing students to be workers either today or in the future.

They painted a picture of an elementary, secondary, and vocational educational system that served the Nation well in past years but has not kept up with the pace of economic and technological change.

Mr. Tucker said:

> Our education system, on balance, is performing about as well now as it was 10 or 20 years ago . . . . What America has got to understand is that the standards that were in place 5 years ago, 10 years ago, 20 years ago, and 30 years ago in this country, are utterly irrelevant.

Witnesses testified that students graduating from high school now lack even basic reading, writing, and mathematics competency as well as "higher order" thinking and learning skills demanded by the competitive, computerized economy; and the job-specific training to move smoothly into slots in business and industry.

These disturbing facts about the capabilities of American high school students and graduates were presented to the Subcommittee by Paul E. Barton, Associate Director of "The Nation's Report Card," the National Assessment of Education Progress (NAEP) of the Educational Testing Service:

- Although 97 percent of high school seniors and 17-year-olds can "understand specific or sequentially related information" they read, only 40 percent of that group can comprehend the basic essence of that information;
- An estimated 5 percent of the above group have reading competency to succeed in post-secondary education; and
- The writing competency of 11th graders is no better now than it was a decade ago.

In a literacy profile consisting of a one-and-a-half-hour assessment of 21- to 25-year-olds in 4,000 homes, NAEP also found:

- About 27 percent (mostly high school graduates, some with some post-secondary education) could find "bits of information in a very lengthy newspaper article"; and
- Only about 10 or 11 percent could figure out how to add a 10-percent tip to a restaurant bill.

These broad trends are confirmed by the testimony of William Wiggenhorn, Vice President of Motorola, Inc., who described the educational status of the 3,200 production workers in one of the company's main factories, in a suburb of Chicago:

> One thousand lack basic math skills: adding, subtraction, multiplication and division; 550 cannot comprehend English; 250 do not read above the first grade level; 2,000 cannot think (in the sense of doing) problem solving.

Badi G. Foster, President of the Aetna Institute for Corporate Education of Aetna Life & Casualty Co., reported that his company spends some $35 million per year in education and training because so many employees arrive at the work place functionally illiterate and lacking in computer literacy.

Others suggested that the vocational educational system has fallen behind the marketplace demand by failing to offer skills that are currently in demand. "They (students) go into vocational education," commented Arnold Packer, Senior Research Fellow at the Hudson Institute and a former Assistant Secretary at the Department of Labor, "and they learn about upholstery or automobile repair, if not buggy whips, and they find that cars no longer have carburetors."

The existence of functional illiteracy and outmoded training of students who finish high school or vocational school is a grave problem, but it is only one of several challenges witnesses identified as basic to structuring a newly competitive education and training system.

Another challenge is how to stem the tide of a 25 percent high school dropout rate (40 percent for Blacks and 50 percent for Hispanics), because dropping out of high school virtually guarantees that the affected youngsters will be a drain on the Nation's economic productivity rather than contributors to it.

Some witnesses, including Mr. Tucker, argued that even more urgent than the problem of how to improve and update the schools is the challenge of upgrading current members of the work force. "The most urgent problem is people who are in the work force right now . . . . We have no policies to meet these needs," he said.

Mr. Magaziner concurred, pointing out that "the pace of technology is so rapid today that upgrading has to take place within existing companies or existing factories, or else you are not going to be able to keep up and compete."

Future Challenges

All of the current problems described above—functional illiteracy of high school graduates, outmoded vocational training, and lack of literacy and skills in the current work force, have inexorably negative implications for the future if we do not create a coherent competitiveness policy, according to witnesses.

They emphasized that as time passes it will become more difficult to catch up. Arnold Packer, for example, projects that only one in 10 new workers has the skills required by three out of four of the jobs expected to be available between now and the year 2000.

Whereas 40 percent of current jobs require minimal reading skills (the ability to read only 2,500 words in some cases or at the level of adventure stories and comic books in others), by the end of this century these minimal capabilities will be acceptable in only 27 percent of new jobs. As the number of low-skill jobs declines and high growth occurs in occupations including law, science, and health professionals, more than half of the new jobs created before the year 2000, according to Mr. Packer, will require some education beyond high school and almost one-third will require a college degree compared to 22 percent currently.

According to "Workforce 2000," a report prepared by the Hudson Institute for the U.S. Department of Labor, the occupations of the future will require more skills because the number of low skilled jobs are declining. Overall, the number of job prospects for professional and technical, managerial, sales, and service jobs will far outstrip opportunities in other fields. As indicated in Table 1, the fastest rates of growth are expected to occur in law, science, and health professionals.

TABLE 1.—THE CHANGING OCCUPATIONAL STRUCTURE, 1984–2000

Occupation	Current jobs (thousands)	New jobs (thousands)	Rate of growth (percent)
Total	105,008	25,952	25
Service occupations	16,059	5,957	37
Managerial and management related	10,893	4,280	39
Marketing and sales	10,656	4,150	39
Administrative support	18,483	3,620	20
Technicians	3,146	1,389	44
Health diagnosing and treating occupations	2,478	1,384	53
Teachers, librarians, and counselors	4,437	1,381	31
Mechanics, installers, and repairers	4,264	966	23
Transportation and heavy equipment operators	4,604	752	16
Engineers, architects, and surveyors	1,447	600	41
Construction trades	3,127	595	19
Natural, computer, and mathematical scientists	647	442	68
Writers, artists, entertainers, and athletes	1,092	425	39
Other professionals and paraprofessionals	825	355	43
Lawyers and judges	457	326	71
Social, recreational, and religious workers	759	235	31
Helpers and laborers	4,168	205	5
Social scientists	173	70	40
Precision production workers	2,790	61	2
Plant and system workers	275	36	13
Blue collar supervisors	1,442	−6	0
Miners	175	−28	−16
Hand workers, assemblers, and fabricators	2,604	−179	−7
Machine setters, operators, and tenders	5,527	−448	−8
Agriculture, forestry, and fisheries	4,480	−538	−12

Source: "Workforce 2000," Hudson Institute (Indianapolis, IN) June 1987.

At the same time that the work place is demanding workers with higher educational levels, nearly half of the available new workers in the United States are from the ranks of those who are least well-served educationally—immigrants and minorities. These groups will make up more than 40 percent of the addition to the labor force between now and the year 2000 and, as Ray Marshall expressed it:

> Almost all of the increase in our work force will be women and minorities for the next hundred years . . . . If we are going to try to compete on something other than wages, we had better be seriously concerned about the deplorable conditions of minority education in the United States. They don't even meet the standard of a rising tide of mediocrity.

In sum, numerous witnesses established that there are crucial links between the effectiveness of the educational system, the per-

formance of individual workers, and the U.S. economic performance.

The witnesses who appeared before the Subcommittee were most helpful in identifying the components of the U.S. educational system that deserve scrutiny and in helping the Subcommittee to understand better the reasons for the discrepancy between the skills of the Nation's labor force and the current and future needs. Their testimony is summarized in the sections of this report which follow.

COMPONENTS OF THE AMERICAN EDUCATIONAL SYSTEM

Testimony to the Subcommittee suggested that, in order to create an internationally competitive work force, the Nation must commit itself to reforms that will address the four fundamental but increasingly problematical components of that system: a growing body of poor, disadvantaged and minority students who are "at-risk"; the structure of the school system; the role of the teacher; and an outmoded curriculum.

STUDENTS

Mary Hatwood Futrell, President of the National Education Association, told the Subcommittee that more and more children are coming to school unprepared. She pointed out that:

> . . . they don't know how to tie their shoes, they don't know how to dress themselves, they don't know their alphabets, they don't know the colors, they don't know the numbers.

Owen Butler, former Chairman of the Board of the Proctor and Gamble Company, and Vice Chairman of the Committee for Economic Development, observed that many high school dropouts, in reality, dropped out in first grade or dropped out before they ever got to first grade. As he explained:

> They cannot compete and nobody likes to do something at which they continually lose. So these children find other avenues to use their energy, whether it's shooting baskets or stealing hub caps, but they will do something at which they can be competitive.

Many "at-risk" students are the children of parents who are themselves children suffering from, and bequeathing to their young, lives of poverty with its overcrowded housing, drug addiction, education failure, out-of-wedlock parenting, and crime. Those students who now have the most difficulty in school—children in poverty, Spanish-speaking, minorities, are also those whose numbers will swell the most in the coming years. Today, one in five children lives in poverty. One in two will live with a single parent before reaching age 18.

"And by the year 2000, nearly 40 percent of our students will be minorities. We will be hard-pressed just to stay where we are. Yet that is a prescription for social injustice and economic disaster," according to Vera Katz, Speaker of the Oregon House of Representatives. She explained that these children are often referred to as "at-risk" because the economic, health, social, and family problems they face, which may be exacerbated by discrimination, diminish their prospects for potential success in the educational system and in the work place.

The risk is substantiated by statistics on dropouts, which suggest that the schools are not educating large numbers of youth—particularly minority youth—to succeed in the future work force. Calling attention to the increase in the number of babies born to teenaged parents and the tendency of teenaged parents to drop out of school, Governor Bill Clinton of Arkansas testified that "the single most important deterrent to young women having a second child out of wedlock was the acquisition of basic skills which gave them a sense of possibility, a sense of tomorrow. . . ."

Students dropping out of school is not a new phenomenon in America. The current situation is particularly significant, however, according to Irving Hamer, Deputy Commissioner for School Improvement, New York State Education Department:

> Because of the concentration of black and Hispanic children, the loss of a key labor element and the new demands of the economic system that requires students and young people to have a better preparation than was the case in 1930 and 1940 . . . . We can no longer accommodate those young people who do not complete the experience . . . .

Children "at-risk" arrive in the public school system—too often not until kindergarten age—already burdened with serious disadvantages that can impede their progress. Mr. Butler observed:

> In some cases they have no parent, or they have parents or guardians who are themselves illiterate, are addicted to drugs or alcohol, and in some cases poverty has caused the problems . . . . This is not fundamentally a racial issue, but a poverty issue. At the same time, we must accept the fact that racial prejudice has been a major contributor to the problem and even today that race compounds the problem.

Added to the individual problems and stresses on children "at-risk" are the environmental stresses. It was suggested by some witnesses that the value that a culture places on education and learning, and the way this is transmitted to students through parents, friends, role models, and the popular culture, is crucial because the effort of the student is probably the single most important influence on educational success.

"The models . . . for so many of these young people are models which they pick up out of the neighborhood," models of people whose success is reflected in their expensive clothing and cars, explained the late Carl Holman, then-President of the National Urban Coalition. Thus, instead of doing well in school, the goal for many youngsters becomes getting the money to buy certain kinds of consumer goods, which all too often leads children into a culture and a life of drugs and crime.

Other witnesses testified that the presence of negative models for children in the ghetto is exacerbated by the lack of positive ones. "Parents who are so busy trying to make a living for their family" often don't or can't take the time to "dedicate attention to the academic development of their children," observed Bettye Washington Toppe, Principal of William McKinley High School in Washington, D.C. In the ghetto, she continued, "there is no correlation between

education and economics. For in their neighborhood few doctors, lawyers, ministers, congresspersons, or others who are successful, can be found."

A number of witnesses suggested that the problem of attitudes and values about education is by no means limited to the ghetto, but, in fact, permeates American society. One symptom of this is that some students stay in school without making any progress. As Vera Katz put it:

> We have heard a lot about the . . . dropouts from high school, what we call the "disappeared" of our educational system, but I would like to focus . . . on a larger group, the educationally disengaged. They go to high school, graduate, even go to college and receive diplomas, but in today's economy they are not successes because . . . [they] are already doomed to failure and frustration. Many are functionally illiterate, lack basic and critical thinking skills that are essential to building a new American economy . . . .

The Nation suffers from a myth, suggested Ray Marshall:

> . . . that education achievement is mainly due to innate ability and not to hard work . . . . If we believe that, then what we do is start tracking people. We assume that minorities and the poor can't learn, and they are slow learners, and we put them with slow learners, and we make that a self-fulfilling prophecy.

Mr. Marshall said that comparative research shows that "the main reason these students do better in other countries is that they work harder."

Structure of the School System

When children arrive at school, they encounter an educational system that by its very structure seems to reflect the assumptions that ability is the only significant factor in educational success; and that certain groups of children cannot succeed, no matter how hard they work.

Although a small percentage of students have access to an "elite" system which prepares them for college, most students attend public schools which for the most part are operating on an obsolete "factory model" of education, suggested John Cole, Vice President of the American Federation of Teachers (AFL-CIO) and President of the Texas Federation of Teachers. Instead of becoming "centers for learning and intellectual development," he said, the schools have become:

> . . . more like the great industrial factories of the 19th and early 20th century . . . . True, there is not an assembly line, but in most high schools there is something like that . . . . Each teacher is at a station. A bell will ring. The line does not move but we have mobile units of production. They move themselves and they cluster at a work station where a teacher for 45 minutes or so attempts to

> pour learning into their heads and then the bell rings and they get up and leave.

Many witnesses agreed with James B. Hunt, Jr., former Governor of North Carolina, that: "the quality of our work force depends primarily on who teaches" American children in the Nation's classrooms.

But they pointed out that students with a wide variety of needs, already at a disadvantage with regard to their peers in schools in the Orient or in Europe, are confronted with what Alan K. Campbell, Vice Chairman of the Board and Executive Vice President, ARA Services, Inc., called a "teacherproof system" in which the classroom teacher has little opportunity to be creative in helping the students learn.

This situation was described by Mr. Cole:

> In many school systems now, teachers are told what to do, how to do it, when and for which standardized test, based on some mythical, composite "average" student dreamed up in some distant central office and never yet seen by a real teacher. In such a model, teacher initiative is stifled, creativity discouraged, and individuality punished.

Teachers

Next to the energy that the student is willing to devote to learning, perhaps the next most powerful influence on educational achievement is the teacher. Witnesses who testified in the hearings emphasized that the Nation's teaching force of 2.2 million persons contains many excellent, effective, and dedicated teachers, but that in too many cases they lack the up-to-date training, substantive knowledge, and institutional supports necessary to educate students to be competitive in today's and tomorrow's global economy.

A major study of the American teaching profession suggests that prospects for the immediate future are not encouraging. In *A Nation Prepared: Teachers for the 21st Century,* the Carnegie Forum on Education and the Economy suggested that the quality of the students now contemplating a teaching career is below the average level of that of all college students. *A Nation Prepared* reported that the percentage of future teachers coming out of a general education program rather than an academic one is increasing. In addition, according to the study, students who say that they want to become teachers "lag behind the performance of the average college bound student (on mathematics and verbal SAT scores) by a substantial margin."

For example, 17 percent of prospective public school teachers in 22 states recently flunked certification exams. In some cases, experienced teachers have been found unable to perform at acceptable levels when tested on the skills and subjects they are currently teaching in the classroom.

Although the last decade has seen a significant shift toward competency testing of teachers, 15 states still do not require competency testing as part of the process for initial certification of teaching. And, according to Governor Hunt, in most states where tests are required, they set minimal standards which are more sophisticated

than a reading comprehension test. In fact, Governor Hunt bemoaned the fact that above and beyond knowledge in a specific area, "the true measure of how well a candidate knows how to teach is almost never made in any of the states in this Union."

Experts say that the deficiencies in the quality of our teacher training and our system for assessing credentials are likely to be exacerbated by a simultaneous demand for quantity. By 1992, witnesses said, the United States will need to fill 1.3 million teaching slots—the equivalent of half of the existing teaching work force. This pressure to prepare and hire massive numbers of new teachers grows from the combined effects of the end of the baby boom—which resulted in hiring of fewer teachers in the 1970's, and the aging of the teaching force; and the impending arrival of the children of the "baby boomers" in the educational system, once again increasing the demand for teachers.

Added to the issues of quality and quantity of the general teaching force are concerns about both the potential size and quality of the Nation's pool of minority teachers. Barbara Hatton, then-Dean of the School of Education at Tuskegee University, testified that—partially due to the shift in Federal college aid from grants to loans—more minority high school graduates are choosing to enter the military or proprietary schools instead of four-year colleges.

Curriculum: Old Basics Versus the New

The "factory" or "mass system" of American education has traditionally offered a curriculum focused on "the old basics, the routinized computational sort of basic decoding or reciting text skills," testified University of Pittsburgh Professor Lauren B. Resnick, who is also immediate past President of the American Educational Research Association.

The goals of the mass system, she elaborated, have been "simple computation, reading predictable tests, reciting civic and religious codes in the past . . . goals that would produce the good scores at the bottom levels of the national assessment."

Witnesses presented ample evidence that this approach has contributed to the creation of a work force ill-prepared to meet the demands of a highly technical and sophisticated industrial complex.

For example, in an international comparison of mathematics achievement, the average math score for American junior high school students was lower than the scores for all but two of the 14 countries studied.[1]

An estimated 13 percent of 17-years-olds in the United States are illiterate; the figure rises to 40 percent among the minority population; and the annual cost of functional illiteracy in lost productivity, accidents, damage to equipment, and government support programs is $25 billion, according to figures presented by Edward D. DiPrete, Governor of Rhode Island, to the Subcommittee.

Further, it is estimated that some 17 to 21 million adults cannot read. State estimates vary between 6 percent in Utah to 16 percent

[1] Scores in the following countries exceeded those in the United States: Japan, The Netherlands, France, Belgium (Flemish), Hungary, British Columbia, Belgium (French), Ontario, Scotland, England and Wales, and Finland. Only scores in New Zealand and Sweden were below those of the United States.

in the District of Columbia, Louisiana, Mississippi, New York, and Texas. Of illiterate adults, approximately 60 percent are from minority backgrounds, 30 percent are over 60 years old, and 70 percent of the native English speakers who are illiterate had dropped out of school before completing high school.

Practically all young adults who finish high school are able to use printed information to accomplish tasks that are routine and uncomplicated. This, however, masks the enormous problem of adults who can read but whose skills are so rudimentary that comprehension and ability to utilize the information is minimal. As Paul Barton of the National Assessment of Educational Progress, testified, "While we can take some solace in the finding that almost all [high school graduates] perform at these basic levels, literacy skills seem to us to be distressingly limited . . . ."

"The Nation's Report Card," published by NAEP, has found that only 11 percent of high school students can properly read a bus schedule, 10 percent can compute the cost of a meal from a menu or find information in a news article, and a mere 5 percent can understand specialized material likely to be found in a professional or technical working environment.

John Cole elaborated on the tangible implications of these facts for the careers and daily lives of the affected students:

> Basic education will educate [students] very well to sign their unemployment checks and it will provide them a way to go collect in the welfare lines. It will not give them the kind of job that they need to have if we are to compete internationally in the high tech world that we are going to face in the future.

Traditional emphasis on rote learning has left another gap in the standard curriculum: failure to provide students with the skills needed to learn independently long after they leave the classroom. Governor Clinton pointed out that "the average 18-year-old will change jobs seven times in a lifetime. That will require him or her to learn many more things."

Both the general education track and vocational education attracted criticism from a number of witnesses who said that they too often keep students in a sort of holding pattern, then allow them to graduate without the skills they need to survive in the economy.

Arnold Packer said of the students in the general education track, they "just sit there for four years and then they give (them) a diploma."

Dale Parnell, President of the American Association of Community and Junior Colleges, called high school general education programs "the academic and vocational desert of American education . . . an unfocused education which relates to nothing, and prepares for nothing."

Governor Clinton was one of the witnesses who expressed concern about the resistance of the vocational education system to adjust to the new realities of the economy, attributing the problem to "the existence of fixed networks of vocational training schools which get substantial amounts of Federal money" and which in turn, "have been imprisoned . . . into building resistant bureaucra-

cies which continue to train people for jobs that may not even be there when the programs are over."

In sum, the witnesses who addressed this topic emphasized that the schools face two basic challenges in the area of curriculum. Students must still be taught reading, writing, and math. However, the way those subjects are taught must be vastly different from the learning by rote of the past. Children must be taught higher order skills; that is, to interpret, not merely to read; to create, not just to write; and to understand the relationship between numbers and their world rather than merely memorizing formulas and functions.

Conclusion

Students entering the Nation's schools in the 1980's encounter a system which witnesses generally agreed has worked well for most American children for decades—but which does not have the capacity to prepare the majority of either today's or tomorrow's students to lead the Nation to success in global economic competition.

Large numbers of those students coming from families with profound social and economic problems are "at-risk" when they enter school. Yet, as the witnesses at the hearings documented, their likelihood of success is diminished even more because they encounter a slow-moving bureaucratic institution, organized on obsolete "factory model" lines, staffed by teachers who in some cases fail tests of their own proficiency, and who are often teaching subjects which are no longer relevant to the students' futures.

Despite the sober appraisal that emerged from much of the testimony, many witnesses strongly reaffirmed their confidence in the ability of American students to achieve at a higher level, and in the ability of the educational system to adjust to the fast-changing demands of the world economy.

Irving Hamer declared:

> The research teaches me . . . that all children can learn . . . all children except those that are most severely disabled have the capacity of completing the high school experience with the skills necessary to perform either post-secondary education or enter employment.

"We know schools can do it," elaborated Ms. Resnick, "because there (is) case after case of institutions, other than schools, succeeding."

These messages of hope are substantiated by numerous analyses, proposals, and experimental programs described by witnesses which suggest that although difficult and challenging, the problem of improving the Nation's educational system to meet international competition is one which can in fact be solved by hard work and creative proposals.

The hearing record is replete with examples of initiatives already taken by individual governors, State and local educators and community organizations, business and industry, and foundations to try to move ahead on a new education agenda for America.

Perhaps most importantly, according to Louis Harris, Chairman, Louis Harris and Associates, public opinion polls conducted by his

firm suggest that the American public supports them. In response to questions, substantial majorities (from 70 percent to over 90 percent in some cases) agreed that the Nation's ability to compete internationally will depend on the creation of a well-educated work force, made up of creative thinkers. Respondents supported efforts to ensure that the growing numbers of minority students also benefit from these improvements in the system, to the degree that over 70 percent said that they were in favor of "increasing spending on education to make minority students fully productive members of the labor force." "In advocating this . . . people see it as a matter of their own and the country's survival," Mr. Harris said, adding that "most Americans see . . . radical change in education as the biggest key to making the country competitive again."

PREPARING FOR A COMPETITIVE FUTURE: AN AGENDA

The 52 witnesses who testified before the Subcommittee presented a wealth of specific suggestions about how to reverse the trends which have compromised the ability of the American educational system to produce workers with higher order skills.

Some of their proposals require action by the Federal Government, others by local and state officials and communities, others by the private sector, and yet others by some combination of these forces.

They made it clear that there is no one, simple formula for remedying a complex problem, the solution to which is a matter of attitudes, values, technology, and, most importantly, political will.

On the other hand, witnesses pointed to a series of existing programs and policies—such as Head Start and the Job Corps—which have been proven successful and can be built upon to move closer to our goals. They also spotlighted a number of newer, promising experiments underway in several school systems, such as a Rochcester, New York, experiment in school-based management and decisionmaking.

Students, Families, and Communities

Many witnesses testified that two of the most potent, hopeful strategies for turning around the educational performance of American students are to:

1. View the educational process as beginning with proper care in the prenatal period and early years even before a child arrives in kindergarten; and
2. Draw on the full resources of individual parents and the community to provide psychological supports as well as social services and supports that are required by youngsters to succeed.

Early Childhood Education

Dropout prevention begins not at the secondary school level but as early as in the prenatal period, several witnesses told the Subcommittee.

Owen Butler explained that a low birth-weight baby is 10 times more likely than one of normal weight to need remedial education. "The most profitable investment we can make to improve education (for 'at-risk' children) is to intervene early—ideally at conception," Mr. Butler testified. "What happens to that child before the child is born has an immense impact on whether that child will ultimately drop out of school."

He stated that there is no better investment that this country can make than ensuring that pregnant teenagers get continued education in academics as well as in personal health care.

Mary Hatwood Futrell also emphasized the importance of early education and health care to later success in school. "The first five years are really the most important years of a child's life. What happens to them during those formative years will, to a large degree, determine what will happen when they move through the school system," she said.

She offered this recommendation to the Subcommittee:

> . . . fully fund . . . Head Start so that every child who needs to be in Head Start can be in it . . . . Encourage more day care programs to be set up, and not just baby-sitting kinds of day care programs, but programs which are developmental in nature and which will really help young people get a better footing regarding education.

Many other witnesses also testified to the Subcommittee that, because of its proven effectiveness in preparing children for later success in school, the Head Start program should be widely expanded.

Parent and Community Involvement

A fundamental component of the Head Start program has always been parent involvement, and witnesses told the Subcommittee that active participation of parents in their child's education is an important factor in determining whether the child succeeds.

Citing a comparative study of Taiwan, Japan, and the United States, John H. Bishop, Associate Professor at Cornell University's School of Industrial and Labor Relations, noted: "Even though the American students had learned the least, their parents were the most satisified with their schools."

Alan Campbell said that encouraging parent involvement is one of the most important activities of the 500 early childhood education centers his company operates across the country but admitted that it is a difficult goal to achieve.

> I would suggest that you're not going to get parent involvement if you depend entirely on voluntary response from the parents. There has to be a reaching-out from the school to the parents convincing them of the school's interest in their children and I would guess that is even more true for children from one-parent families, children who are "at-risk" educationally.

"Parents are children's first teachers," explained Mr. Hamer, but he also underscored the importance of parental interest and involvement throughout the child's educational experience. He continued:

> Research shows us that providing parents with opportunities to be involved in their children's education is one of the most important steps we can take . . . . One way to ensure parental involvement is to install system-wide policy and practice that require it.

Mr. Hamer also suggested that creation of parent centers and home-school workers could help parents to be more supportive of their children's school activities.

Reinforcing the concept that the most successful education programs are true community efforts that go even beyond the individual child and parent, Douglas G. Glasgow, Vice President for Washington Operations of the National Urban League, urged that "community service organizations should focus on strengthening positive family values, parenting skills, and values regarding the worth of the individual as a means of striking at some of the root causes of the dropout program."

He advocated establishment of closer links between community service organizations and the schools and also called for efforts by the clergy, civic groups, and business leaders to enhance the role of the school at the center of social, cultural and economic life in the community—especially in the ghetto, where the school and the church are sometimes the only institutions.

The Structure of the School System

The many-layered structure of the educational establishment, operating under a variety of governmental mandates, is a major barrier to providing the type of education American students now require, contended numerous witnesses. To liberate the system from its current sluggishness in meeting the full dimensions of the education crisis facing America, they called for:

- Abandonment of the "factory model" of organization;
- Restructuring of the decisionmaking process;
- Experimentation with lengthening the school day and year; and
- More productive use of school facilities for the broader adult community on evenings, weekends, holidays, and during the summer.

Restructuring Decisionmaking

Alan Campbell called for a "revolution" in school organization and management. He said what is needed is:

> . . . much greater autonomy at the school level so that curriculum decisions, teaching technique decisions, the organization of the school, will be made by the profession of teachers in that school in association with their administrators.

Mr. Campbell also called for a highly decentralized approach to school organization and management based on models taken from professional law firms, professional accounting firms, and modern business practice.

Sonia Hernandez, instructional support teacher at the Emma Frey Elementary School in San Antonio, Texas, suggested that:

> One critical way of revamping public education is going to be through the dismantling of the large central administration bureaucracy where so much money is being sucked in and lost.

She estimated that by "restructuring and dismantling" some administrative units in her area, $1 million could be generated to

"make a real difference in the classroom where things ought to be happening."

Mr. Cole pinpointed the role of the school principal as one which should be rethought and restructured. Affirming that an effective principal is one of the most important factors in an effective school, he suggested that principals are given too many responsibilities, many of which are bureaucratic and do not contribute to the substance of the instructional program. Mr. Cole commented:

> They are supposed to not only be the instructional leader, they must be the public relations expert. They must be the disciplinarian in the elementary schools. They must count the chalk and make sure the cafeteria has enough enchiladas.

In addition, Mr. Cole observed that, in the present school structure, in order to be effective a principal "has to be a bit of a guerrilla . . . sniping at the rules all the time to get the focus of the faculty on the instruction and not on the bureaucracy, the red tape." He also proposed that the Federal Government fund research on more effective ways to structure schools.

Offering another perspective on how governmental policies influence school structure and programs, Mr. Tucker suggested that some school districts have lagged in replacing unsuccessful programs with ones that have been proven successful because, he suggested, "there are no real rewards for success and no real penalties for failure."

The attitude of some educational decisionmakers, he said, is:

> If the incremental cost of Head Start or the incremental cost for the IBM-sponsored program Writing to Read happens to be, as it is, significant, then the answer is that we cannot afford it. There is no downside risk. People don't get fired if kids don't learn.

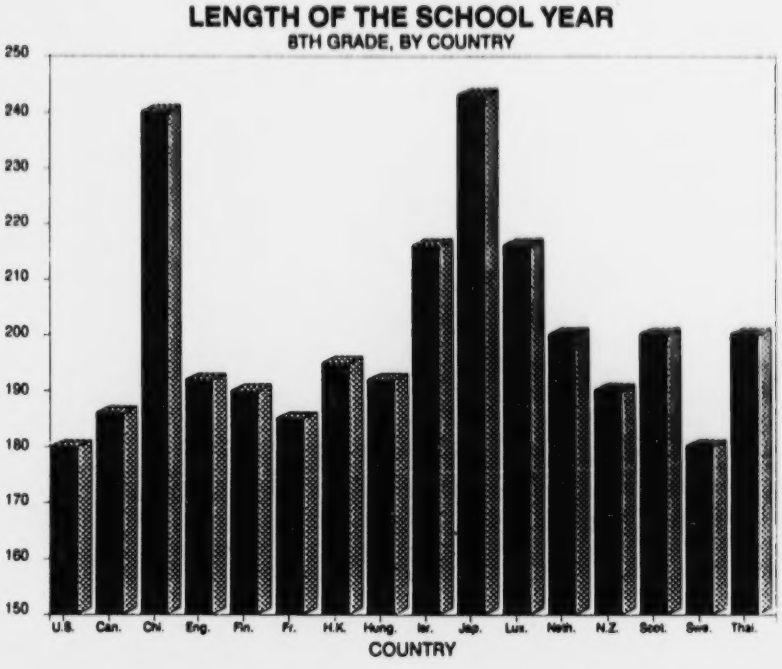
Urging the Federal Government to put more pressure on school districts to develop programs that work, Mr. Tucker proposed that individual schools within a school district should be required to compete to secure and retain Federal funds for the education of children "at-risk." Once a project was funded, it would have two or three years to prove its success. If achievement did not improve, funds would be removed from that school and made available for competition from other applicants. "You keep turning the money over . . . so that the money went to schools that were making progress for the kids, not just to schools that happened to have eligible children in their student body," he urged.

Extending the School Day and Year

Requiring American students to spend more time in the classroom or in classroom-related activities will not guarantee their academic success, but many witnesses suggested that there is evidence that it could be beneficial. "The United States has one of the shortest school years and school periods of any major industrial country (and students) spend less time in the classroom than most other students," noted Ray Marshall. (This point is illustrated in Figure 4.) As a result, he pointed out, when American youngsters graduate

from high school they have generally completed fewer years of study of mathematics and science and other important subjects than children in most other developed countries.

FIGURE 4



Source: *The Condition of Education: A Statistical Report*, 1985 edition, Center for Education Statistics (U.S. Government Printing Office, Washington, D.C.). Table 1.15.

Another disadvantage of the 180-day U.S. school year (compared with 240 days in Japan and anywhere from 180 to 240 days in nations with which the United States competes economically) is that, during summer vacation, students may fall behind academically by as much as a full year. Thus they must begin the next year by catching up, with the result that they never catch up fully. Governor Clinton suggested that, "We should look at using summer school programs in a very targeted, careful way." Others pointed out that keeping school buildings open longer hours and more days could facilitate delivery of many types of needed services.

Irving Hamer contended:

> If schools are truly committed to seeing their students succeed, once they are inside the school building we must play the hand that has been dealt us . . . . We have a responsibility to respond to the realities of the lives of children and the conditions that they bring with them to school.

He and other witnesses suggested that, especially for youngsters who live in neighborhoods that lack adequate social, psychological, and other important services, the school should be transformed into a multipurpose community center that offers a range of services such as counseling and support for students who have medical, drug, or alcohol problems or need vocational counseling or other assistance. As Mr. Hamer put it:

> We want to figure out a way for the school . . . (to) be a site at which lots of activities are organized . . . for the school to be open for extended hours (during) the day, on weekends, and th. ughout the summer months, serving not simply as the bastion of instruction but as a place where a myriad activities are going on critical to social life in the local community.

Teachers

Governor Hunt, who is Chairman of the National Board for Professional Teaching Standards, underscored the importance of the role of the teacher:

> To become a leading economy in the world . . . requires a teaching force that is superior to what we have today or have ever had in the past . . . teachers have got to teach higher order cognitive skills so that all of our youngsters . . . will be more creative and more productive.

How to train, recruit and retain, and hold accountable an adequate number of high-quality elementary and secondary school teachers were questions that stimulated many suggestions from the witnesses.

Alan Campbell reflected the view of a number of witnesses when he testified that restructuring the school system is a necessary condition for attracting and retaining a committed, high-quality teaching force. Shifting decisionmaking closer to the classroom teacher can help maximize a teacher's creativity and potential, he said.

Ms. Futrell said that teachers should be given a role in redesigning and restructuring the schools and in drawing up systems of accountability. "To do less than that," she said, "is not to give teachers the automony and to treat them as professionals, and that is what I think they are."

Recruiting and Training Teachers

Governor Hunt told the Subcommittee that the type of exceptionally skilled teacher the Nation needs in the next few years must bring four things into the classroom:

1. A solid foundation in the liberal arts and sciences;
2. Understanding of the subject matter that they teach;
3. A solid grounding in pedagogy—that is, they must know how to teach; and
4. A rich clinical experience with the help of an experienced coach or student teaching.

Reform of teacher education institutions and programs will be required in order to prepare teachers with these qualifications, he said.

Alan Campbell referred to the anticipated turnover in the Nation's teaching force as a "window of opportunity" that offers promise that "we can indeed reinvigorate the teaching profession in this country in a relatively short period of time."

According to Marc Tucker:

> . . . in order to attract bright, creative people to the profession, the school system must be restructured so that teachers are convinced that there are real career opportunities which justify their career decision.

Minority Teachers

Concern was expressed about the urgency of attracting minorities into teaching at a time when the minority population in elementary and secondary schools is growing; high school drop-out rates for minority students are well above the national average and minority youth who do attend and graduate from college have a growing range of career opportunities from which to choose.

Barbara Hatton described the efforts made at the School of Education of Tuskegee University to improve the quality of the graduates consistent with the competency levels established by education reform legislation in recent years. The school's strategy of paring down its program offerings to those which it could implement most effectively has resulted in more highly qualified graduates and "what we have done at Tuskegee has been repeated at many of our black colleges and universities," Ms. Hatton told the Subcommittee, but it is not enough.

According to Ms. Hatton, the existing resources of education programs at historically black colleges and universities are not adequate:

> . . . to produce the required number of teachers that we will need to staff our public schools and to correct the projected imbalance when, in a very short time now, we will have a largely white teaching force with a large minority public school population.

Ms. Hatton proposed that the following strategies be undertaken:

1. Increase the number of minority students who go to college—especially by providing more financial aid in the form of grants rather than loans;
2. Analyze and redefine tools used to measure student achievement. The goal should be to move from what she believes is a punitive perspective designed to "screen out" students from the profession, to a positive perspective that focuses on helping students to succeed; and
3. Search for and support alternative models to identify and "support promising young secondary pupils as well as adult mid-careerists in other fields who can be recruited as teacher candidates."

Holding Teachers Accountable

According to Sonia Hernandez:

> There are too many colleges of education that are sending out teachers into the field . . . who are unprepared for it, who cannot handle a classroom, who do not know how to deal with minority children or who speak a different language.

She summarized the problem and went on to express the hope that the work of the National Board for Professional Teaching Standards would be able to remedy this problem by setting "higher standards for teachers" and legitimizing these standards by certifying only the teachers who meet them.

She urged that new links be forged between the performance of the teacher—as measured by student achievement—and opportunities for better pay and advancement. Recalling a teacher with whom she worked previously, Ms. Hernandez recounted:

> I went back over six years and checked her students out on a . . . nationally standardized test. Every year they lost 60 points when they went to this teacher, and I could not use that information to fire her. She is still teaching. Now that has got to stop.

Ralph Lieber, Superintendent of Schools in the Bartholomew Consolidated School District in Columbus, Ohio, proposed resolving this type of problem by "turning the system upside down and restructuring it, so that the teacher is the most important person and has the authority and the accountability and the remuneration necessary" to attract highly competent young people into the teaching profession.

Improving teacher pay is a key to attracting and retaining good teachers, argued Ms. Hernandez, because under the current system "the only way to better your salary if you are a teacher is to become an administrator," creating an incentive for good teachers to leave the classroom.

Ray Marshall suggested rewarding school professionals on the basis of "value added," that is: how much they improve the learning, the knowledge, and the skills of the students. He said that this would encourage the best teachers to work with disadvantaged students because these students potentially could make the most progress. At the same time, teachers could advance their careers and increase their salaries without having to leave the classroom.

Ms. Futrell differed with several of her fellow witnesses on how to construct a fair system of incentives and accountability. While she did not object to teachers "being held accountable for things over which they have control," Ms. Futrell said she opposed the concept of teachers being paid on the basis of students' test scores; arguing that, "the best way to measure performance . . . is through an on-site evaluation." Ultimately, however, Ms. Futrell indicated that teachers would be willing to sit down with the appropriate persons to define accountability. "What we are opposed to," she said, "is people coming in and saying this is how you are going to be held accountable."

Mr. Lieber suggested that many models of restructured schools be explored and documented and that national training centers be

established to train people to organize and manage those that have the most potential.

He advocated experimenting with a "market driven system, wherein people hang up their shingle within a public school setting, or as colleagues band together and hang out their private practitioner shingle, creating an educational clinic."

CURRICULUM

One the strongest messages that emerged from the hearings was that what American students study and learn at school fails to meet the demands of today's work place as well as tomorrow's. In addition to procedural and structural reforms designed to release the energy and capability of the Nation's teaching force, witnesses stressed, it is essential to revamp the curriculum.

Witnesses agreed that a shift to teaching the "new basics" is crucial but they also advocated enriching other aspects of the curriculum.

The New Basics

Increasingly the business community is defining its needs more precisely and joining educators to design a curriculum that will provide students with the skills they need to learn for success in the work place.

Alan Campbell called for teaching "higher order skills . . . the ability to draw conclusions from written information; to communicate an idea or point of view effectively in a coherent essay; and the ability to solve problems involving mathematical reasoning by using numerical facts."

Richard Heckert, Chairman and Chief Executive Officer of the E. I. du Pont de Nemours & Company, explained that future workers will:

1. Have much less direct supervision, requiring them to exercise their own judgment and initiative much more than in the past; and
2. Employees will be required to make more and more complex decisions about auxiliary and manufacturing line functions involving intensified mechanization, instrumentation, and computerization.

In addition, Mr. Heckert predicts that "simple, repetitive jobs will increasingly be performed by machines . . . ."

This changing role and increased sophistication of machines in the work environment demands changes in the education of personnel who will work with them, pointed out Lauren Resnick. She explained:

> The machines are going to have a certain degree of adaptability and "smarts" in them, and people are going to have to have even more than that or they are not going to be able to use them in any sensible way . . . (and) when systems change or temporarily break down, the humans who use them are going to have to . . . figure out what is wrong and how to respond . . . . Our population must be

able to learn "on the job" as conditions change, to respond productively to new opportunities and challenges.

And because people currently, and increasingly in the future, will change jobs frequently, workers will have to adapt to a number of different jobs. Rather than providing students with job-specific training, job preparation in schools must, therefore, involve teaching attitudes and abilities that enable students to learn new skills readily in the future.

Personal and Interpersonal Skills

Reading, writing, computing, and even highly sophisticated thinking skills will not be enough to ensure that American students will be adequately prepared to perform competitively in the work place of the future, according to the experts who testified.

Anthony Carnevale, Chief Economist and Vice President of the American Society for Training and Development, told the Subcommittee:

> . . . the American education system, for the most part, with rare exceptions, is not teaching the appropriate set of skills. Most of the skills that are missing are affective or soft skills, the ability to work on a team, the ability to interact personally, the ability to take responsibility . . . .

Mr. Heckert concurred, suggesting that entrants to the work force will be more effective if they have "a positive attitude toward team objectives, a willingness to work as part of a group . . . ."

International Literacy

A third type of curriculum change recommended by several witnesses addressed the need to prepare American students to operate more comfortably and, thus, more effectively in the global marketplace. Indiana Governor Robert Orr related this anecdote:

> I asked a distinguished Japanese, the Chairman of the Mitsubishi Corp. . . . what language should Americans learn to speak. He smiled and said, "Obviously, the language of their customer."

Vera Katz commented that, "I have always been somewhat appalled that Oregon, sitting on the Pacific Rim, does not mandate a foreign language upon graduation from high school," and attributed this to the existence of a fragmented education system in which different boards govern elementary and secondary, community college, and university level education. She added, however, that by 1992 all college graduates in her state will be required to have studied a foreign language.

Governor Orr said that the success of an American salesman calling on a customer from another country will depend not just on his foreign language skills but also on his knowledge of geography, history, politics, and culture:

> Knowing where a country is, what a country does, what kind of people live there, what kind of economy they have,

what kind of resources they have, what kind of politics and government . . . .

Vocational Education

Although the Nation's vocational education system was conceived as a direct channel to success in industrial America, a wide range of witnesses testified that the existing vocational system does not prepare students to adapt to numerous job changes in a work place characterized by increasingly sophisticated work processes and tools.

Although some witnesses went as far as to propose abolition of the system, a number of suggestions for reforms were also made. It was pointed out that businesses as well as students suffer when vocational training is inadequate because employers must either invest in skill development programs or seek alternative sources of labor, i.e., export the jobs or automate. Some suggestions offered focused on forging closer links between business and education.

To strengthen the system, witnesses proposed that vocational education programs should, among other things:

- Be developed in concert with the business and labor community to ensure that business needs are reflected in the training provided;
- Provide opportunities for on-the-job training so students are exposed to the realities and requirements of the work place;
- Teach students to be creative, solve problems, work in groups, perform a variety of tasks and to adapt to a continually changing job market;
- Teach students about the work ethic and employer expectations concerning behavior, attire and attitude;
- Test students' proficiency prior to graduation so that the school can guarantee qualified employees to employers; and
- Provide work-study opportunities so that students can earn money while learning how to function in the "real world" work place.

A number of school systems, including that in Prince Georges County, Maryland, have begun to adopt some of these recommendations. Prince Georges County Superintendent John Murphy told the Subcommittee that educators in his school district work with a Business Advisory Council to assess skill deficiencies in graduates and to outline specific skills required for employment. The cooperation has led to curriculum revisions and development of a test to determine whether graduates have acquired the skills which the work place demands.

Graduates who meet these requirements receive a guarantee certificate which indicates to employers that the student is qualified to meet the designated expectations. If the employer finds that the student is not performing up to acceptable standards, however, the student may be sent back to school for additional education through adult education programs at no expense to the employer.

Working with representatives of business and labor, New York State has adopted a new program designed to respond to the changing needs of the State's economy and work force. James Kadamus, Assistant Commissioner for Occupational and Continuing Educa-

tion with the New York State Department of Education, described the program's four basic components:

1. Basic academic skills which are reinforced, particularly in the areas of occupational mathematics and science;
2. Transferable skills which are provided in the seventh and eighth grades to offer students maximum flexibility in selecting and achieving career goals. These skills focus on understanding systems of technology, problem-solving and decision-making concepts, working in groups, managing time and money, and appropriate work behavior;
3. Core occupational skills which train students for a cluster of jobs by providing training in skills that cut across the range of jobs; and
4. In job-specific skills offered towards the end of the high school program.

He said that the program has helped motivate students to stay in school. In New York City, for example, students in vocational high schools are twice as likely to remain in school as students in other high schools, he reported.

Accountability

Holding Educational Systems Accountable

The principle of accountability for performance should be recognized throughout the entire national educational establishment. Not just individual teachers or schools but also school districts and systems and even states should be rewarded and penalized according to the academic success of their students, it was suggested.

Federal, state, and local policies were criticized for simply funding and operating programs, and failing to specify expected outcomes and reward the teachers, school systems, or states that achieve them.

For example, some suggested that programs for the disadvantaged be redesigned to reward schools and districts which overcome disadvantage, rather than simply "rewarding" districts for having disadvantaged students within their jurisdiction.

Marc Tucker remarked that, since the presidency of John F. Kennedy, the Federal role in education has been defined "as providing access, implicitly, to a system that works. The problem has been providing access to it, not changing the system. What we now face is a system that does not work."

According to Governor Clinton, the states, like school districts and teachers, need considerable flexibility to try a variety of approaches. But, he added, like teachers, in return for flexibility, the states must be held accountable and have a burden to demonstrate a return.

Governor Orr reported that his State is moving to develop an accreditation system based at least in part on student progress toward meeting new State standards for skills. Several witnesses advised the Subcommittee that the issue is not whether students come to school or drop out, but how much they actually learn.

Some witnesses advocated incentives directed to students and parents, others to teachers, still others to school boards and state

government leaders. But almost all, in one way or another, advocated a shift to policies oriented toward rewards for achievement, and away from entitlements and programs that lack accountability.

New Measures of Achievement

Educators, business leaders, and public officials alike said that the Federal Government could contribute to establishment of an effective performance-oriented educational system by supporting research on several crucial areas in which information is lacking.

Lauren Resnick called for a major research effort to develop better ways to assess student achievement in the "new basics." She described the National Assessment of Educational Progress as the only major Federal activity in the testing area, and characterized it as "desperately underfunded." She proposed that the Federal Government develop examples of new approaches to assessment because "we can't to do it in 50 separate states. That kind of development of the technology for testing and assessment is an appropriate Federal role."

John Bishop and Alan Campbell both pointed out the need for assessment mechanisms that go beyond multiple choice and/or standardized tests to make a more accurate judgment of the ability of a student to perform "higher order" skills of thinking and analysis.

TRAINING THE AMERICAN WORK FORCE

The Transition From School To Work

"People who cannot adequately read, write, or do simple math," testified Richard E. Heckert, "cannot learn how to become carpenters, electricians, and plumbers." They simply do not qualify for the apprenticeship programs.

Many witnesses identified the transition from school to work as an area that presents problems for many youngsters, particularly those from minority groups and poor neighborhoods.

Stephen Trachtenberg, then-President of the University of Hartford and current President of George Washington University, spoke of the fears of poor and minority youngsters who are thrust into the job market:

> It is a fear of failure. It is the fear of being judged, of looking different, of seeming different, speaking different(ly). And I think, to some extent also, it is an anxiety about their language and mathematical skills . . . .

William Spring, Vice President for District Community Affairs of the Federal Reserve Bank of Boston, added that:

> If you have young people coming from an environment where no one they know personally has made it in the larger economy . . . it is going to look very scary and unlikely. They [have had] the rhetoric about opportunity and what America is like for a long time. [But] if you do not do something about these divisions in American life, then the rhetoric will sound cynical to young people. It does . . . . You have to build a structure which shows them that working hard in school will pay off.

One such structure, described by Mr. Spring, is the Boston Compact (The Compact), a coalition of Boston area business executives that has worked with the public school system to increase the rate of employment for disadvantaged youngsters in that city. He reported that, after three years of operation, this public-private effort showed the following results for Boston high school graduates compared with all U.S. graduates in 1985:

EMPLOYMENT/POPULATION RATIOS FOR CLASS OF 1985 IN THE OCTOBER FOLLOWING GRADUATION

[In percent]

	U.S.A.	Boston
Whites	52	62
Hispanics	43	54
Blacks	28	60

Under The Compact, area businesses target a certain number of jobs for disadvantaged students who have good school attendance records and meet certain entry level standards established by the business community. The business community helps to pay for a career specialist or "job coach" in each high school to work with youngsters individually, making them aware of the job entry requirements, helping them to develop interview and work skills, and placing them in a job at which they are likely to succeed. Because the coaches know both the students and the employers, they can act as effective bridges between the two. According to Mr. Spring, The Compact places substantial emphasis on creating part-time, work-study, and summer work opportunities for these youngsters in which they can develop the work habits and attitudes that are essential to success later on.

Work Place Education and Training

> The best training system is a fully employed work force. Working and learning are inextricably intertwined.

These words from Anthony Carnevale represent more of a goal than a current fact, according to the testimony received.

> There is a vast number, probably a majority, of line workers in the United States right now, who cannot justify the wages that they hold, unless they become very much better educated, quickly. That is, by far, the most urgent problem we face, the people who are right there in the work force now.

Mr. Tucker, who made this statement to the Subcommittee, was one of the witnesses who urged immediate, rapid action to update the skills of the current work force as well as to reform the education offered to future, new workers.

Philip Power, Chairman of Suburban Communications Corporation and of the Michigan Job Training Coordinating Council, reminded the Subcommittee that 80 to 90 percent of the current work force will still be working in the year 2000. He said that neglecting to upgrade the skills of the work force will consign a generation of inadequately skilled and functionally illiterate workers to severe problems because of their inability to adapt to the demands of new jobs. Mr. Power urged, therefore, that workers' skills be upgraded now in order to prevent them from being dislocated later.

Mr. Power stressed that a message that American managers need to understand is that "investing in human capital can often pay off with greater returns than investing in physical plant." He added that the United States is "absolutely behind . . . our international competitors in terms of dealing with this."

Many witnesses seconded his assertion that "worker retraining represents a huge gap in [Federal] legislation," as well as in the budgets of corporations. They said that the other major industrial trading nations invest much more in training workers once they are on the job.

Mr. Carnevale observed:

> That missing piece is some sort of training and development structure inside the work place . . . . We've got lots of investment—$150 billion in the elementary and secondary education system, $100 billion in the higher education system . . . but very little in the work place.

Mr. Carnevale pointed out that exceptions include some large corporations such as Motorola and AT&T.

William Wiggenhorn of Motorola estimated that American firms spend an average of about 1 percent of payroll for continuing education and training of their staff, compared to about 2.5 percent to 3 percent by the Japanese, and observed that some American businesses invest more in maintaining equipment than in keeping their workers up to date. He explained:

> When we buy a piece of capital equipment, we'll tend to put away about 12 percent for servicing and maintenance on that equipment . . . . When you hire a person, we tend not to budget any funds to keep that person competent.

Marc Bendick, Jr., of Bendick and Egan Economic Consultants, Inc., also compared the average of 1 percent of payroll spent on employee development with the "percentage loads on the payroll [for] such payments [as] health insurance, retirement, and so forth, which amount to many percentage points of the payroll." He concluded that "we seem to be willing to expend very generously for things which are consumption oriented and very reluctant to expend for things which are productively enhancing."

New Models for Education and Training

Testimony to the Subcommittee revealed that the experts see both the Federal Government and private industry as having significant responsibility for education in the work place; and many witnesses described programs underway in other countries or offered new proposals for consideration in the United States.

A recurring theme in the discussion of training models paralleled a theme that emerged in the earlier discussion of elementary and secondary education: that funding be targeted to programs that can prove their success and shifted away from those that cannot. Many witnesses suggested that this might be accomplished by directing funding to individual workers rather than to a program or service which provides the training.

Mr. Bendick and Mr. Wiggenhorn said they believe that the most effective national plans for continuing work-related education and training—including those of France, Singapore, and Scotland—are based on this concept of distributing funds to the individual worker for the purchase of training and related services.

"If you give the money to the supplier," said Anthony Carnevale, "what happens is that the supplier continues to do what it has always done and thereby tends to be less responsible to employers."

Witnesses offered several proposals for Federal incentives and subsidies to encourage employers to undertake needed worker education, training, and retraining while they continue working.

Mr. Bendick described the French "tax offset" system, in which each employer of 10 or more employees is obligated to spend 1.6

percent of total wages on employee education and training. He explained that if the employer fails to spend the requisite amount, then the shortfall in expenditures must be sent to the national government as a payroll tax.

However, he said, the government views the system as a way to stimulate employers to offer the training, rather than as a revenue-raising device, and thus the government provides extensive technical assistance to help firms provide the training and thereby not pay the tax. Mr. Bendick cited data showing that since the law was passed in 1971 employers have substantially increased their expenditures for training, and that the increase in training provided by small firms and low-skill industries—considered to be a problem area in the United States—has been particularly significant.

Mr. Bendick cited these advantages in the system:

> Employers control who, when and what to train. That keeps decisionmaking generally decentralized, flexible, productivity-oriented. For that combination of private efficiency and public problem solving I would recommend the French tax credit approach as a model for examination for application in the United States.

Mr. Bendick noted that in California, "employers have accepted a training tax of one-tenth of 1 percent of their [payroll] in place of a part of their unemployment insurance payments and they did that even without the offsetting tax feature, which I believe is so essential."

Mr. Carnevale proposed creating a Federal tax credit of 20 cents on each dollar that employers spend over 104 percent of the last three or four years' average expenditure on education and training. He estimated the cost to the Federal treasury would be under $800 million a year, and said he believed that this expenditure would stimulate incremental employer expenditures on education and training of between $6 billion and $7 billion annually.

Robert Glover, a Research Associate at the University of Texas, described the West German system, in which the proceeds from a payroll tax on employers and employees are put into a national trust fund and used to pay for unemployment benefits, job search and counseling, and employee education, training, and retraining. The trust fund is administered by a board composed equally of representatives of employers, labor, and government.

The witnesses generally agreed that approaches employed by other industrialized nations and others proposed here in the United States—including the Individual Training Accounts proposed by Pat Choate, Director of Policy Analysis for TRW—should all be evaluated as possible models for a new U.S. policy.

Some witnesses believed that the public sector should take more substantive initiatives which would go beyond funding mechanisms.

Philip Power shared with the Subcommittee a description of the State of Michigan's efforts to organize and redirect a patchwork of existing job training programs and channel limited resources into more targeted, effective training activities.

Based on his experience he offered the following recommendations:

- Put literacy and skill levels to a marketplace test by defining skills needed for a job and requiring a worker to demonstrate them on a test before being hired. This will shift focus from the process a person went through (. . . a graduation diploma, for example) and onto the skills a person possesses or needs to gain;
- Coordinate all job training programs whether they are for vocational education, adult education, welfare training, etc. This will enable maximizing the use of the funds already in the system, which is considerable; and
- Establish *one place* where people come when they need job training and parcel out funds regardless of which program it is from.

Ira Magaziner recommended that government and industry work together to establish four types of pilot programs to upgrade the skills of the American work force:

- A remedial program to eliminate functional illiteracy in reading and mathematics;
- Joint industry-higher education partnerships to provide programs for skill upgrading in manufacturing technology for line workers, technicians, and industrial engineers. This could be provided by community colleges with greatly upgraded programs and equipment;
- State and local funding to encourage the upgrading of skills through workplace education and training programs; and
- Encourage industry associations to cosponsor training programs that cut across those industries, an approach that has met with great success in other countries.

Unique Federal Roles

In addition to the many suggestions and models for public and private education and training initiatives on the Federal, state, and local levels, witnesses pinpointed certain activities they believe are crucial which should be performed by the Federal Government.

Joan Wills, then-Director of the Center for Policy Research of the National Governors' Association, made a plea for strengthening the Federal Government's data collection activities. "The Bureau of Labor Statistics," she said, can no longer "provide accurate monthly state-by-state information on the employment and unemployment condition in each state." Lack of funds made the Bureau "unable to adjust their survey of employers to capture the growth of service sector industries," she said, "making it almost impossible to identify the implications of this growth and its impact on the economy."

Ms. Wills also called for expansion and improvement of the National Assessment of Educational Progress, noting that this is crucial "if we are ever to have an adequate barometer to tell us how our schools are performing their tasks."

Badi Foster, of Aetna, recommended that the Federal Government create a national clearinghouse on "best practices in adult education in the corporate sector," and Lauren Resnick suggested that the Federal Government should "spotlight" programs which are found to be successful.

CONCLUSION AND SUMMARY OF HEARING RECOMMENDATIONS

Although the decline in the value of the dollar since 1985 has reduced prices of U.S. goods and increased U.S. sales abroad, U.S. competitiveness continues to be impaired by our investment deficits in infrastructure, research and development, education, and job training. The nine hearings conducted by the Subcommittee on Health and Education on "Competitiveness and the Quality of the American Work Force" were part of the JEC's continuing efforts to document the consequences of our investment deficits.

The testimony vigorously underscored the immediacy and magnitude of the problem, and the urgency of prompt and concerted measures to improve the education, training and retraining of the American worker. At the same time, however, the testimony left little doubt that in many critical areas fundamental change is essential, and assuring substantial and sustained improvement will therefore be a long-term challenge as well.

Witnesses brought to the hearings the experience of every region of the country as well as numerous professional and personal perspectives on the problem and what must be done. They included representatives of the private sector and of community organizations, labor leaders, economists, governors and local officials as well as a range of practitioners and researchers from the fields of education and training. From their testimony clear and consistent themes emerged which merit summary:

1. *We need to begin responding now to the demographic signals for the future.* With fewer young people expected to enter the labor force, the economy will be unable to afford a pool of marginally educated, trained, and employable workers. Every American child must have the opportunity to be educated to the maximum of his or her ability.

2. *Greater opportunities are needed for early childhood education.* Enough time has elapsed to measure the achievement of children who received early education against those who did not. There is strong and consistent evidence that those who participated in such programs do better in school than those who did not. More than 20 years' experience with Head Start proves the value of such programs conclusively.

3. *We need to view school buildings as an economic investment that should be utilized to the most productive level possible. We should begin to locate education-related facilities and services that complement the educational process in the schools.* Social service centers offering vital job, health, and other counseling services, and after-school day care programs are some of the types of programs which are appropriate and can be valuable to students in the school setting. Schools can also contribute to the educational needs

of adults by offering literacy and other education programs for adults.

4. *Serious consideration should be given to lengthening school hours, the school week and the school year.* American students spend much less time in school compared with their higher-achieving counterparts in Japan and certain other countries. In addition, the realities of family life today suggest that school schedules need to be revised to accommodate more after-school programs and shorter summer vacations.

5. *Achievement in education needs to be redefined to extend beyond basic reading, writing, and mathematics skills to include problem solving and abstract reasoning, the so-called "higher order skills."*

6. *We must also re-examine and update our vocational education system to better prepare students for the rapid and profound changes occurring in the workplace now and which will continue to occur in the future, at an accelerating pace.*

7. *The need for students to attain higher levels of achievement requires that we provide both the work environment and the training necessary to maximize the effectivesss of every teacher.* Teachers should be regarded as professionals and given the flexibilty to make judgments about how a particular child will learn most effectively; they should participate in the decisions that affect the operation of the classroom and the school; and they should be held accountable for the progress of their students.

8. *Both the private and the public sector must make commitments not only to training today's youth for tomorrow's jobs, but also to creating a permanent system which is both sophisticated enough and flexible enough to ensure that the American work force receives the continuing training necessary to compete in the global economy.*

9. *Active Federal support will be required for research, development, demonstration, and information programs to strengthen elementary and secondary school education and training and retraining programs at the work site.*

10. *Examination and analysis of our policies on education, training, productivity, and employment must continue and progress.* The work of the 100th Congress on welfare reform and the review of the Joint Training Partnership Act represent positive steps in that direction.

The witnesses made clear that our Nation has much to learn from the experience of other industrialized nations, such as Japan, Singapore, and West Germany, about how to encourage and support continuing education of the work force. This experience as well as pending proposals in this country for tax credits, workers training stipends, etc., should be evaluated as a step toward creating a new policy that marries the commitment and resources of both the public and private sector.

11. *Teacher certification, student testing policies and school-based management and decisionmaking remain essentially state and local matters.* However, the Nation as a whole has a vital interest in them and we should therefore continue to monitor the progress of such promising efforts as the new National Board for Professional Teaching Standards, The Boston Compact, Indiana's "A Plus" program, and Oregon's "Two Plus Two" program, each of which aims

to offer students a combination of sound academic and vocational training.

Stating the problems, debating them, and elucidating them, as was done in these hearings, is the first step toward resolving them. The next task, as Speaker Katz articulated so well, is to spread the word:

> The challenge is to engage and mobilize the ranks of taxpayers, business, parents, teachers, to move the vision of an educational renaissance out of the blue ribbon reports and into the classroom.

For each of these critical target groups, suggests Ms. Katz, there is a slightly different message:

- To the three-fourths of our taxpayers who don't have any children in school, the message must be that their future is connected to the quality of schools;
- To business leaders and to labor . . . that the price of mediocre or failing schools will mean economic stagnation and decline;
- To parents . . . that signing report cards is no substitute for making their presence directly felt in the school building and in the classroom; and
- To the rank and file teachers . . . (that) it is time to let their own leadership know . . . that they are ready for more professional responsibility and with it increased accountability . . . for the performance of their students.

Despite the complexity and the dimensions of the challenge, the testimony at these hearings leaves no doubt that the cost of failing to respond would cause even graver, more debilitating consequences for our economy and for future generations than we have already experienced during the 1980's as we have amassed the trade deficit and have been transformed from the world's largest creditor nation to the world's largest debtor nation.

WITNESS LIST

SERIES OF HEARINGS CONDUCTED BY

CONGRESSMAN JAMES H. SCHEUER, CHAIRMAN,

SUBCOMMITTEE ON EDUCATION AND HEALTH,

JOINT ECONOMIC COMMITTEE

COMPETITIVENESS AND THE QUALITY OF THE AMERICAN WORK FORCE

SEPTEMBER 23, 1987

Title: "The Hinge of the Economy: The American Worker—Part I"

Witnesses:

The Honorable William E. Brock, Secretary, U.S. Department of Labor

The Honorable Roger D. Semerad, Assistant
Secretary for Employment and Training
U.S. Department of Labor

Louis Harris, Chairman
Louis Harris and Associates

James D. Watkins, Admiral
U.S. Navy (retired)

Stephen S. Cohen, Professor
University of California, Berkeley; and
Director, Berkeley Roundtable on the
International Economy

OCTOBER 1, 1987

Title: "The Schools: Why High School Students Fail to Meet the Standards and What to Do About It—Part I"

Witnesses:

The Honorable James B. Hunt, Jr., former Governor
State of North Carolina

Alan K. Campbell, Vice Chairman of the Board; and
Executive Vice President, Management and Public Affairs
ARA Services

Owen B. Butler, former Chairman of the Board
The Procter and Gamble Company

John Cole, Vice President
American Federation of Teachers; and President,
Texas Federation of Teachers

John Bishop, Associate Professor
New York State School of Industrial and Labor Relations
Cornell University

OCTOBER 5, 1987

Title: "The Right Standard: Literacy, The Old Basics or the New Basics"

Witnesses:

Badi G. Foster, President
Aetna Institute for Corporate Education

Arnold H. Packer, Senior Research Fellow
The Hudson Institute

Paul Barton, Associate Director
The Nation's Report Card
National Assessment of Educational Progress
Educational Testing Service

Lauren B. Resnick, Professor of Psychology; and Director
Learning Research and Development Center
University of Pittsburgh

OCTOBER 21, 1987

Title: "The Hinge of the Economy: The American Worker—Part II"

Witnesses:

The Honorable Bill Clinton, Governor
State of Arkansas on behalf of the National
Governors' Association

The Honorable Edward D. DiPrete, Governor,
State of Rhode Island; and Chairman, National
Governors' Association Committee for Economic
Development and Technological Innovation

Ray Marshall, Professor
L.B.J. School of Public Affairs; and former Secretary
U.S. Department of Labor

Ira C. Magaziner, President
Telesis

Marc S. Tucker, Executive Director
Carnegie Forum on Education and the Economy

Pat Choate, Director
Policy Analysis
TRW

Ralph Lieber, Superintendent
Bartholomew Consolidated School Corp.
Columbus, IN

OCTOBER 27, 1987

Title: "The Schools: Why High School Students Fail to Meet the Standard and What To Do About It—Part II"

Witnesses:

The Honorable Robert Orr, Governor
State of Indiana

The Honorable Richard W. Riley, former Governor
State of South Carolina

The Honorable Vera Katz, Speaker
Oregon House of Representatives

John A. Murphy, Superintendent
Prince George County Public Schools, MD

Barbara R. Hatton, Dean
School of Education
Tuskegee University

Sonia Hernandez, Instructional Support Teacher
Emma Frey Elementary School
San Antonio, TX

Mary Hatwood Futrell, President
National Education Association

OCTOBER 29, 1987

Title: "Retraining the Work Force: Those Who Are Employed—Part I"

Witnesses:

Donna Medved, Director
Intergovernmental Affairs and External Liaison
Department of Employment and Immigration, Canada

William A. Wiggenhorn, Vice President and Director
Training and Education
Motorola Inc.

Philip H. Power, Chairman
Suburban Communications Corporation
Ann Arbor, MI

Anthony Carnevale, Chief Economist and Vice President
National Affairs
American Society for Training and Development

Marc Bendick, Jr.
Bendick and Egan Economic Consultants, Inc.
Washington, D.C.

Arnold Simkin, London Representative
Stratecon Corporation

NOVEMBER 10, 1987

Title: "Preventing High School Dropouts: Attitudes and Behavior of Students"

Witnesses:

Bettye W. Topps, Principal
William McKinley High School
District of Columbia

Signithia Fordham, Associate Professor of Anthropology
University of the District of Columbia

Irving Hamer, Deputy Commissioner for School Improvement
New York State Education Department

Carl Holman, President
National Urban Coalition

NOVEMBER 19, 1987

Title: "Retraining the Work Force: The Hardcore Unemployed"

Witnesses:

Joan Wills, Director
Center for Policy Research
National Governors' Association

Harold W. McGraw, Jr., Chairman of the Board
McGraw-Hill, Inc.

William Spring, Vice President
District Community Affairs
Federal Reserve Bank of Boston

Lori Strumpf, President
Strumpf Associates; and Project Director
Center for Remediation Design

Judith M. Gueron, President
Manpower Demonstration Research Corporation

Michael G. McMillan, Executive Director
AFL-CIO Human Resource Development Institute

Stephen Joel Trachtenberg, President
University of Hartford
West Hartford, CT

James A. Kadamus, Assistant Commissioner for
Occupational and Continuing Education
New York State Education Department

DECEMBER 3, 1987

Title: "Competitiveness and the Quality of the American Work Force: Wrap-up Session"

Witnesses:

James E. Dezell, Jr., General Manager
IBM Education Systems
IBM Corporation

Richard E. Heckert, Chairman of the Board
E.I. du Pont de Nemours & Company

Robert W. Glover, Research Associate
Center for the Study of Human Resources
LBJ School of Public Affairs
University of Texas at Austin

Douglas G. Glasgow, Vice President
Washington Operations
National Urban League, Inc.

Marc S. Tucker, Executive Director
Carnegie Forum on Education and the Economy

99-900 (64)